

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
25 August 2005 (25.08.2005)

PCT

(10) International Publication Number
WO 2005/078363 A1

(51) International Patent Classification⁷: **F25B 9/00**,
F16K 39/00, 5/00

(21) International Application Number:
PCT/US2005/004748

(22) International Filing Date: 9 February 2005 (09.02.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/544,144 11 February 2004 (11.02.2004) US

(71) Applicants: **SUMITO HEAVY INDUSTRIES, LTD.**
[JP/JP]; Intellectual Property Department, 9-11, Kitashina-
gawa 5-chome, Shinagawa-ku, Tokyo 141-8686 (JP).
SHI-APD CRYOGENICS, INC. [US/US]; 1833 Vultee
Street, Allentown, PA 18103-4783 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **GAO, Jin, Lin**
[CN/US]; c/o Shi-APd Cryogenics, Inc., 1833 Vultee
Street, Allentown, PA 18103-4783 (US).

(74) Agents: **HELFGOTT, Samson et al.**; Katten, Muchin,
Zavis, Rosenman, 575 Madison Avenue, New York, NY
10022-2585 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: **THREE TRACK VALVE FOR CRYOGENIC REFRIGERATOR**

